

SNL/NM Chronic Beryllium Disease Prevention Program; An Integrated Approach to Hazard Assessment

Compliance with DOE N 440.1; Chronic Beryllium Disease Prevention

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Beryllium Uses at SNL/NM

- **Development of heat sink armor**
 - heat sinks used in fusion reactor experiments
- **Target material in accelerator experiments**
- **Electrical contacts for particle beam accelerator experiments**
 - beryllium in the form of beryllium/copper alloy finger stock
- **X-Ray filters**
 - beryllium in the foil form at various thicknesses

Recognized Potential Exposure

- **Maintenance Operations**
 - Hardware surfaces are “cleaned” using mechanical means
 - » carbon dioxide pellets
 - » grinding
- **Analytical results from personal air monitoring events show 8-hour TWA Be exposure to be at concentrations less than the analytical limit of quantitation**

Integrated Hazard Assessment

- **SNL test and R & D activities are excluded from DOE N 440.1 through exclusion 2c of the notice**
- **Excluded SNL activities are regulated by 29 CFR 1910.1450; Occupational Exposure to Hazardous Chemicals in Laboratories**
- **Exposure assessments for excluded activities are directed by SNL Industrial Hygiene Procedure “Occupational Exposure Assessment Strategy”, and 1910.1450 (d)**

Integrated Hazard Assessment

- **DOE N 440.1 and the SNL Chronic Beryllium Disease Prevention Program apply directly to non-excluded SNL activities**
- **These activities include custodial services, protective forces/security, construction and maintenance, neutron generator production, RCRA permitted TSD facilities, hazardous waste cleanup operations, and emergency response scenarios**
- **Currently, I.H. surveillance has revealed a low potential for exposure to beryllium in non-excluded activities**

Tools used during Beryllium Hazard Assessments for Excluded and Non-Excluded Activities

- **SNL Chemical Inventory System includes beryllium**
- **Ongoing Occupational Exposure Assessments**
- **Integrated Safety Management System (ISMS)**
 - Preliminary Hazard Screen
 - Hazards Assessment
- **Daily Industrial Hygiene Support via Matrixed ES&H Support Teams**
 - Exposure monitoring is documented in formal Industrial Hygiene Investigation Reports (IHIR) and distributed to effected workers and managers
 - Medical is copied on all IHIRs involving chemical exposure monitoring (particulate, vapor, gas, liquid)

Medical Monitoring

- **SNL/NM has no exposure or surveillance data to require a beryllium medical surveillance program or worker participation in such a program.**
- **SNL/NM does have a Be program and participation is voluntary**
- **Medical monitoring is initiated according to 1910.1450 paragraphs (a)(2)(iii) and (g), or upon medical recommendation**
- **8 workers (6 employees and 2 contractors) participate in the SNL Be Medical Surveillance program**
- **No manifestations to date**

Training

- **Workers exposed or potentially exposed are trained on topics such as routes of exposure, health hazards associated with exposure, and exposure control techniques**
- **Training is according to 1910.1450 and 1200 for excluded and non-excluded activities, respectively**
- **Training is provided using established courses or customized activity specific sessions**

Summary

- **Even though most SNL activities are excluded from DOE N 440.1, equivalency was in place through existing IH practices such as:**
 - Anticipation, Recognition, Evaluation, Control
 - Occupational Exposure Assessment
 - Matrixed IH support to Line
 - Medical Monitoring Program
 - Chemical Inventory System
 - Implementation of Lab Standard requirements (1910.1450)
 - Industrial Hygiene Investigation Reports
 - Training